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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/325,110	06/03/1999	CARL S. ANSELMO	PD-990033	2415

20991 7590 11/29/2006

THE DIRECTV GROUP INC
PATENT DOCKET ADMINISTRATION RE/R11/A109
P O BOX 956
EL SEGUNDO, CA 90245-0956

EXAMINER
CHOW, CHARLES CHIANG

ART UNIT	PAPER NUMBER
2618	

DATE MAILED: 11/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

Office Action Summary	Application No.	Applicant(s)
	09/325,110	ANSELMO, CARL S.
	Examiner	Art Unit
	Charles Chow	2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 October 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-8,11,12,15-18 and 21-31* is/are pending in the application.

4a) Of the above claim(s) *9,10,13-14,19-20* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8,11,12,15-18 and 21-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

Detailed Action

1. This office action is for the amendment received on 10/10/2006.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hammill et al. (US 6,173,178 B1) in view of Floury et al. (US 5,963,845) and Siwiak (US 5,640,166).

For claim 1, Hammill et al. [Hammill] teaches a system for providing high frequency data communication [Fig. 1] for the high frequency satellite data communication system [col. 3, line 53 to col. 4, line 25], the system comprising

a plurality of communication satellites [col. 1, lines 18-26], having uplink and downlink antennas capable of receiving and transmitting a plurality of signals [the 6 satellite antenna provides the downlink, uplink multiple beams, for communication with ground station, col. 4, lines 13-25],

the at least one of said satellite being a reconfigurable satellite [the re-configuration for various different frequencies, different beam bandwidth, beam sizes, via information transmitted from ground station, col. 4, lines 13-25],

Hammill fails to teach the programmable frequency synthesizer coupled to an upconverter and a down converter.

Floury teaches a programmable frequency synthesizer [Ol11 to OL162, Fig. 4-5, of the frequency converter], coupled to an upconverter [MS11-MS161] and a down converter of a communication control circuit [down converters, MS112-MS162, for converting to any

frequency, for any frequency conversion, col. 5, lines 8-24, of the communication circuit in Fig. 4-5, Fig. 2A-2D; control signals TC1 to TC16, Fig. 4; the telecontrol signals received from ground facility, col. 4,lines 19-38, col. 9, lines 16-50, Fig. 4; the local oscillators OL11 to OL162; the telecontrol signal received from the ground facility, col.9, lines 16-50 & col. 4, line 19-38], to control the satellite frequency from ground facility. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hammill with Floury's control information from ground facility, in order to control the satellite frequency from the ground facility.

Hammill & Floury fail to teach a routing table storing tuning information therein; a controller located on said satellite coupled to sad communications control circuit, the controlling a frequency reconfiguration of said communication control circuit from a first frequency range to a second frequency range through said programmable frequency synthesizer in response to said tuning information.

Swiak teaches a controller located on said satellite coupled to sad communications control circuit [the controller 216 coupled to the transmitter/receiver 228, Fig. 2, col. 3, lines 52-64];

a routing table storing tuning information therein [table 1 storing Doppler compensation frequencies, for tuning synthesizer 222, col. 2, line 41-col. 3, line 42, Fig. 2];

the controlling a frequency reconfiguration of said communication control circuit from a first frequency range to a second frequency range through said programmable frequency synthesizer in response to said tuning information [the controller 216 controlling the frequency reconfiguration for the transmit/receive communication circuit 228, by correcting the synthesizer frequency 222 using the Doppler frequency shift values, in the routing table 1, to program synthesizer 222, from a first frequency range to a second frequency range,

col. 2, line 41-col. 3, line 42, Fig. 2], in order to tune to the correct frequency for communication link. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hammill, Floury with Siwiak's Doppler frequency shift tuning information to correct the frequency of the synthesizer 222 via controller 216, in order to tune to the correct frequency for communication link.

For claim 3, Floury teaches wherein said communication control circuit comprises an upconverter [MS11-MS161] and a down converter [MS112-MS162],

the telecontrol signals, TC1-Tc16, received from the ground facility, col.9, lines 16-50 & col. 4, line 19-38], using the same reasoning in claim 1 above to combine Floury to Hammill.

For claim 4, Siwiak teaches said communications control circuit comprises a transponder [the circuit for transponder 200 in Fig. 2], using the same reasoning in claim 1 above to combine Siwiak to Hammill & Floury.

For claim 5, Floury teaches the upconverter [MS11-MS161] and a down converter [MS112-MS162] & Siwiak teaches the transponder [200], using the same reasoning in claim 1 above to combine Siwiak to Hammill & Floury.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hammill in view of Floury, Siwiak, as applied to claim 1 above, and further in view of Wiswell et al. (US 6,205,319 B1).

For claim 2, Hammill, Floury & Siwiak fail to teach the features for this claim.

Wiswell et al. [Wiswell] teaches, the comprising a beam forming network coupled to uplink and downlink antenna [front figure, the receive/transmit beam phased array 102-108, 120-126; up/down converter 110] for the selectively adjusting of the amplitude and phase antenna beam for receiving/transmitting information [abstract, col. 1, lines 5-9; col. 2, lines

27-30], using ewer multi-beam antennas [col. 1, line 65 to col. 2, line 2; col. 2, lines 8-15], in order to reduce the satellite payload complexity, and the power requirement using fewer beam antennas. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hammill, Floury, Siwiak with Wiswell's fewer beam phased array antennas for receiving and transmitting, in order for the satellite payload to be efficient, of having less complexity, & saving power consumption.

5. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hammill in view of Floury, Siwiak, as applied to claim 1 above, and further in view of Brown (US 6,157,621).

For claim 6, Hammill, Floury & Siwiak fail to teach the features for this claim.

Brown teaches the said communication control circuit comprising a TDMA switch [the time division multiple access switch in col. 61, lines 24-31, for the communication control circuit]. Brown considers the utilization of the on-board computer, the adaptive routing processor for selecting the best route pathway according to routing table [col. 17, line 8-42; col. 43, line 46 to col. 44, line 9]. Brown provides the solution for selecting of the best routing path utilizing the route table information, above, such that the route could be the best path. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hammill, Floury & Siwiak with Brown's TDMA switch, such that the best route path could be selected.

For claim 7, Brown teaches said communication control circuit comprises a packet switch (the packet switch 1306 [Fig. 112A; col. 60, line 65 to col. 61, line 11], using the same reasoning in claim 3 above to combine Brown to Hammill, Floury, Siwiak.

6. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hammill in view of Floury, Siwiak, as applied to claim 1 above, and further in view of Galvin (US 6,182,927 B1).

For claim 8, Hammill, Floury & Siwiak fail to teach the satellites for LEO, MEO, GSO. Galvin teaches the satellites for LEO, MEO, GSO (col. 6, lines 34-54, the low earth orbit satellites 50, GEO 52, the MEOs in Fig 6) for improving the satellite navigation accuracy [col. 2, line 47]. Galvin teaches the efficient method to add the augmentation satellites in LEO, or MEO or GEO, the navigation accuracy could be improved (col. 6, lines 34-37). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Hammill, Siwiak, with Galvin's adding different augmentation satellites such that the system could be provide the navigation accuracy.

7. Claims 15, 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Floury in view of Wolcott et al. (US 6,317,583 B1) and Siwiak–'166.

For claim 15, Floury teaches a payload circuit for a satellite [Fig. 4-5] comprising a receive array [Xpol, Ypol, antennas in Fig. 2a], a transmit array [Ant (t) in Fig. 2B], for re-configuration [col. 7, lines 48-54; col. col. 9, lines 29-38],
said communication control circuit [Fig. 4-5] being an up converter and a down converter [the two mixers Ms11 to MS162 in Fig. 4], for any frequency conversion [col. 5, lines 8-24].

reconfiguration circuit coupled to the communications control circuit for reconfiguring the communication control circuit [the frequency synthesizer local oscillators OL11 to OL162 coupled to the communication control circuit, mixers MS11 to MS162, for reconfiguring the frequency, Fig. 4],

said reconfiguration circuit comprising a programmable frequency synthesizers coupled to the up converter and down converter [the synthesizer OL11 to Ol162 coupled to the up,

down converter mixers MS11 to MS162; the TC1-TC16, local oscillator OL11 to OL162, col.9, lines 16-50 & col. 4, line 19-38], and

Floury fails to teach a receive beam forming network, a transmit beam forming network, for the controlling of the satellite communication.

Wolcott teaches these features [the synthesizers in Fig. 5, col. 5, lines 1-29; Fig. 6, the receive arrays 160-162, receiver beam forming network 170, the transmit beam forming network BNF 214, the transmit array 1-85]. Wolcott teaches the reliable beam handover for the mobile terminal ground tracking [col. 6, line 48 to col. 7, line3]. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Floury with Wolcott's satellites in constellation, having tunable synthesizer for beam handover, such the satellite beam reconfiguration could be reliable.

Floury & Wolcott fail to mention <u>an on board computer and a routing table having tuning information stored therein; said on-board computer controlling a reconfiguration of said communication control circuit from a first frequency range to a second frequency range through said programmable frequency synthesizer in response to said tuning information</u>.

Siwiak teaches an on board computer and a routing table having tuning information stored therein; said on-board computer controlling a reconfiguration of said communication control circuit from a first frequency range to a second frequency range through said programmable frequency synthesizer in response to said tuning information [the controller 216, as the on-board computer to control the frequency reconfiguration for the transmit/receive communication circuit 228, by correcting the synthesizer frequency 222 using the Doppler frequency shift values, in the routing table 1, to program synthesizer 222, from a first frequency range to a second frequency range, col. 2, line 41-col. 3, line 42, Fig. 2], in order to tune to the correct frequency for communication link. Therefore, it would have

been obvious to one of ordinary skill in the art at the time of invention to modify Floury, Wolcott with Siwiak's Doppler frequency shift tuning information to correct the frequency of the synthesizer 222 via controller 216, in order to tune to the correct frequency for communication link.

For claim 11, Siwiak teaches said communications control circuit comprises a transponder [the communication control circuit in Fig. 2 comprises transponder 200], using the same reasoning above in claim 15 to combine Siwiak to Floury & Wolcott.

For claim 12, Siwiak also teaches said communication control circuit [Fig. 2] comprises an upconverter and a down converter [the uplink block 212, downlink 228, is obviously comprising the upconverter, down converter], using the same reasoning in claim 15 above to combine Siwiak to Floury & Wolcott.

8. Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Floury in view of Wolcott, Siwiak, as applied to claim 15 above, and further in view of Brown (US 6,157,621).

For claim 16, Floury, Wolcott & Siwiak fail to teach the features in this claim.

Brown teaches said communication control circuit comprising a TDMA switch [the time division multiple access switch, col. 61, lines 24-31, for the communication control circuit]. Brown provides the solution for selecting of the best routing path utilizing the route table information, above, such that the route could be the best path. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Floury, Wolcott, Siwiak with Brown's TDMA switch, such that the best route path could be selected.

For claim 17, Brown teaches said communication control circuit comprises a packet switch [[the packet switch 1306, Fig. 112A; col. 60, line 65 to col. 61, line 11], using the reasoning in claim 15 above to combine Brown to Floury, Wolcott & Siwiak.

9. Claims 18, 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Floury in view of Siwiak-'166 and Pizzicaroli et al. (US 5,813,634).

For claim 18, Floury teaches a method of configuring a satellite [Fig. 4-5] comprising the steps of transmitting reconfiguration instructions to said satellite [receiving command from ground facility, col. 4,lines 19-38 & col. 9, lines 16-38],

Floury fails to teach the routing table & changing of the synthesizer frequency range.

Siwiak teaches the reconfiguring the frequency configuration of the payload of the reconfiguration satellite in response to the tuning information in a routing table by changing an up converter frequency and a down converter frequency from a first frequency range to a second frequency range using a programmable frequency synthesizer [the controller 216, as the on-board computer to control the frequency reconfiguration for the transmit/receive communication circuit 228, by correcting the synthesizer frequency 222 using the Doppler frequency shift values, in the routing table 1, to program synthesizer 222, from a first frequency range to a second frequency range, col. 2, line 41-col. 3, line 42, Fig. 2], in order to tune to the correct frequency for communication link. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Floury with Siwiak's Doppler frequency shift tuning information to correct the frequency of the synthesizer 222 via controller 216, in order to tune to the correct frequency for communication link.

Floury & Siwiak fail to teach configuring a satellite system having plurality of satellites associated with the deploying a reconfigurable satellite; the re-positioning a satellite from a network position, and moving the reconfigurable satellite into the network position.

Pizzicaroli teaches these features [the replacing of the failing satellite with spare satellite, abstract, Fig. 1; step of deploying a reconfigurable satellite, Fig. 5-6, steps 720, whether to place spare satellite in service; the commanding spare satellite to maneuver into position to provide service in col. 5, lines 41-55; step 725, give spare satellite positional target and authorization; command two satellites to spare orbit in step 750; command satellite to initiate maneuver in step 760], in order to provide reliable satellite communication link by utilizing a spare satellite to replace the failing satellite. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Floury, Siwiak with Pizzicaroli's repositioning, maneuvering, the spare satellite into operating orbit, in order to provide the reliable communication link, by utilizing the spared satellite.

For claim 28, Floury teaches a method of configuring a satellite [Fig. 4-5] comprising the steps of transmitting reconfiguration instructions to said satellite [receiving command from ground facility, col. 4,lines 19-38 & col. 9, lines 16-38],

Floury fails to teach the routing table & changing of the synthesizer frequency range.

Siwiak teaches the reconfiguring the frequency configuration of the payload of the reconfiguration satellite in response to the tuning information in a routing table by changing an up converter frequency and a down converter frequency from a first frequency range to a second frequency range using a programmable frequency synthesizer [the controller 216, as the on-board computer to control the frequency reconfiguration for the transmit/receive communication circuit 228, by correcting the synthesizer frequency 222 using the Doppler frequency shift values, in the routing table 1, to program synthesizer 222, from a first

frequency range to a second frequency range, col. 2, line 41-col. 3, line 42, Fig. 2], in order to tune to the correct frequency for communication link. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Floury with Siwiak's Doppler frequency shift tuning information to correct the frequency of the synthesizer 222 via controller 216, in order to tune to the correct frequency for communication link.

Floury, Siwiak fail to teach the deploying a reconfigurable satellite.

Pizzicaroli teaches these features [the replacing of the failing satellite with spare satellite, abstract, Fig. 1; step of deploying a reconfigurable satellite, Fig. 5-6, steps 720, whether to place spare satellite in service; the commanding spare satellite to maneuver into position to provide service in col. 5, lines 41-55; step 725, give spare satellite positional target and authorization; command two satellites to spare orbit in step 750; command satellite to initiate maneuver in step 760], in order to provide reliable satellite communication link by utilizing a spare satellite to replace the failing satellite. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Floury, Siwiak with Pizzicaroli's repositioning, maneuvering, the spare satellite into operating orbit, in order to provide the reliable communication link, by utilizing the spared satellite.

10. Claims 21-27, 29-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Floury in view of Siwiak, as applied to claims 18, 28 above, and further in view of Pizzicaroli-'634 & Brown-'621.

For claim 21, Floury, Siwiak & Pizzicaroli, fail to teach the steering antenna and phase shift. Brown teaches the steering antenna and phase shift (col. 14, line 51 to col. 15, line 5) and the beam forming 554/568, beam compensation (Fig. 42, col. 19, lines 15-40).

Brown teaches the utilization of the on-board computer, the adaptive routing processor for selecting the best route pathway according to routing table (col. 17, line 8-42; col. 43, line 46 to col. 44, line 9). Brown provides the solution for selecting of the best routing path utilizing the route table information, above, such that the route could be the best path. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Floury, Siwiak & Pizzicaroli with Brown's steering antenna and phase shift, such that the best route path could be selected.

For claim 22, Siwiak teaches further comprising storing tuning information in a routing table [the memory 218 storing the Doppler frequency shift tuning information, Fig. 2, Table 1].

For claim 23, Brown teaches the steering antenna, phase shift, the beam compensation for the changing of amplitude or phase of a beam [the beams steering using various microstrip phase delay line in col. 14, line 51 to col. 15, line 4; the beam steering with independently controlling of directivity gain and power gain, and the control for increasing the receive power gain in col. 25, lines 29-52]. Siwiak teaches reconfiguring beam in response to the tuning information in the routing table
[the memory 218 storing the Doppler frequency shift tuning information, Fig. 2, Table 1; for tuning beam, col. 2, lines 41 to col. 3, line 42], using the same reasoning in claims 18, 21 above to combine Brown, Siwiak to Floury, Pizzicaroli.

For claims 24, 25, Pizzicaroli teaches the moving of the reconfigurable satellite. Brown teaches the performed using east/west station keeping [col. 30, lines 7-20], using the same reasoning in claims 18, 21 above to combine Pizzicaroli, Brown to Floury, Siwiak.

For claims 26, 27, 30, 31, Brown teaches the constantly updating of the route information in the cache memory and receive route information for the updating the routing

table from order wire, from RF control channel [col. 43, line 46 to col. 44, line 9; col. 49, lines 10-20], using the same reasoning in claim 21 above to combine Brown to Floury, Siwiak & Pizzicaroli.

For claim 29, Floury, Siwiak & Pizzicaroli fail to teach the step of reconfiguring the payload comprising changing the amplitude or phase coefficients of a beam in response to the tuning information.

Brown teaches the reconfiguring the payload comprising the changing of the amplitude or phase coefficient of the beam in response to the tuning information in the routing table (the beams steering using various microstrip phase delay line in col. 14, line 51 to col. 15, line 4; the beam steering with independently controlling of directivity gain and power gain, and the control for increasing the receive power gain in col. 25, lines 29-52), the utilization of the on-board computer, the adaptive routing processor for selecting the best route pathway according to routing table (col. 17, line 8-42; col. 43, line 46 to col. 44, line 9). Brown provides the solution for selecting of the best routing path utilizing the route table information, above, such that the route could be the best path. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to modify Floury, Siwiak & Pizzicaroli, with Brown's TDMA switch, such that the best route path could be selected.

Response to Argument

11. Applicant's arguments with respect to claims 1-8, 11-12, 15-18, 21-31 have been considered but are moot in view of the new ground(s) of rejection.

Regarding applicant amendment based on the argument for the no teaching of the features, <u>a routing table storing tuning information therein; the controlling a frequency reconfiguration of said communication control circuit from a first frequency range to a</u>

second frequency range through said programmable frequency synthesizer in response to said tuning information [pages 8-9 of applicant's amendment dated 10/10/2006],

Siwiak [US 5,640,166] teaches a routing table storing tuning information therein [table 1 storing Doppler compensation frequencies, for tuning synthesizer 222, col. 2, line 41-col. 3, line 42, Fig. 2]; the controlling a frequency reconfiguration of said communication control circuit from a first frequency range to a second frequency range through said programmable frequency synthesizer in response to said tuning information [the controller 216 controlling the frequency reconfiguration of the transmit/receive communication circuit 228, by correcting the synthesizer frequency 222 using the Doppler frequency shift values, in the routing table 1, to program synthesizer 222, from a first frequency range to a second frequency range, col. 2, line 41-col. 3, line 42, Fig. 2].

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Charles C. Chow whose telephone number is (703) 306-5615. The examiner can normally be reached on 8:00am-5:30pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Urban can be reached on (703) 305-4385. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Charles Chow C.C.

November 17, 2006.

EDWARD F. URBAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600